

CLAIMS

1. A method by which a fluid heat reactive resin system is formulated and configured below the melting temperature of a base resin and cured comprising the steps of:
 - introducing the base resin and a curing agent for the resin into a pressure vessel;
 - 5 introducing a liquefiable gas into the pressure vessel;
 - adjusting the temperature and pressure within the vessel to the supercritical range of the liquefiable gas;
 - solvating the resin and dispersing the curing agent in the gas that is in the supercritical range;
 - 10 slowly reducing the pressure within the vessel to essentially atmospheric pressure;
 - discharging a fluid heat reactive resin mixture from the vessel.
2. A method according to Claim 1 wherein the discharged fluid heat reactive resin system is coated over a substrate.
3. A method according to Claim 1 wherein the discharged fluid heat reactive resin system is converted into a powder.
4. A method according to Claim 2 wherein the fluid heat reactive resin is cured at low temperatures below about 140° C.
5. A method according to Claim 1 wherein other ingredients selected from the class consisting of curing agents, pigments, additives are introduced into the pressure vessel and dispersed in the solvated resin.
- 20 6. A method according to Claim 1 wherein the fluid heat reactive resin is configured by calendering.
7. A method according to Claim 1 wherein the fluid heat reactive resin is configured in a mold.
8. A method according to Claim 1 wherein the fluid heat reactive resin system is maintained in a fluid state for a transient processing time by the inclusion of a plasticizer or high boiling solvent
- 25 in the heat reactive system.
9. A process according to Claim 1 in which enough pressure is maintained in the vessel when the pressure is reduced to aid in discharging the fluid heat reactive resin.

10. A process according to Claim 1 wherein the resin has a molecular weight (M_n) in the range of 400-100,000.
11. A process according to Claim 1 wherein the gas is carbon dioxide.
12. A process according to Claim 1 wherein two pressure vessels are used in tandem, alternately transferring the liquefied gas from one vessel to the other.
13. A resin dispersion prepared by:
 - charging a resin mixture and a plasticizer for the resin into a pressure vessel;
 - introducing a liquefiable gas into the pressure vessel and adjusting the temperature and pressure within the pressure vessel to a supercritical range for the liquefiable gas;
 - solvating the resin and dispersing the resin mixture in the liquefiable gas in the supercritical range;
 - slowly reducing the pressure in the vessel to approximately atmospheric pressure;
 - discharging an unfoamed fluid resin dispersion from the vessel;
 - configuring the fluid resin dispersion; and
 - curing the configured resin dispersion at a temperature below about 140° C.
14. A method according to Claim 13 wherein the plasticizer is present in an amount between about 1 wt% and 25 wt %.
15. A method according to Claim 13 wherein the plasticizer is a high boiling solvent.
16. A method according to Claim 13 wherein fluid resin dispersion is configured over a substrate.
17. A method according to Claim 16 in which the substrate is wood, plastic or paper.
18. A method according to Claim 13 wherein the fluid resin dispersion is configured by spraying it over a substrate.
19. A method according to Claim 13 wherein the fluid resin dispersion is configured by applying it to a substrate by dip coating.
20. A method according to Claim 13 wherein the fluid resin dispersion configured by converting it into a powder.